

ABSTRACT

5 A fluorine-containing synthetic quartz glass article
is produced by feeding a silica-forming reactant gas,
hydrogen gas, oxygen gas, and optionally, a fluorine
compound gas from a burner to a reaction zone, flame
hydrolyzing the silica-forming reactant gas in the reaction
zone to form fine particles of silica, depositing the silica
10 particles on a rotatable substrate in the reaction zone to
form a porous silica matrix, heating and vitrifying the
porous silica matrix in a fluorine compound gas-containing
atmosphere to form a synthetic quartz glass ingot, removing
a surface portion from the ingot, and heating and molding
15 the surface-removed ingot. The article is optically
homogeneous as demonstrated by a high transmittance to
vacuum UV light of less than 200 nm like ArF or F₂ excimer
laser light as well as a low birefringence and a small
refractive index distribution.